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NOTES ON SOME INTERESTING PLANTS FROM JOWAI, MEGHALAYA

During the course of investigations into the flora of Jowai District, Meghalaya state in N-E India between 1968 and 1972, the author has come across several interesting plants which are new records for India or for the phytogeographical area, including a new variety from the area. Relevant notes, short descriptions and key to some species are given below. Unless otherwise stated the specimens are all deposited in Kanjilal Herbarium of Botanical Survey of India, Shillong (ASSAM).

ARALIACEAE

1. Aralia chinensis L. Sp. Pl. 273. 1753; Li in Sargentia 2: 109. 1942.

Shrubs, 2-7 m, sparsely prickly; leaves 40-80 cm long, 2 or 3 pinnate, usually with a pair of leaflets at each division of rachis; leaflets ovate to oblong-ovate, narrowly rounded at base, acute at apex, closely ciliate-serrate at margins, 5-12 cm long, 3-8 cm broad; lateral nerves 6-8 pairs; panicles terminal, 25-35 cm long; peduncles 1-4 cm long; pedicels 2-5 mm long; flowers ± 3 mm across, yellowish-green; fruits globose, 5-angled, 3-4 mm diam.

Evergreen subtropical forests, 1200-1500 m; Jarain, *Balakrishnan* 46807 (det. at K).

This species previously known only from S & S-E China is a new record for India. This and the following species are closely related to the already known *A. thomsonii* of the area and differ as follows:

1. Flowers pedicelled:
    2. Inflorescence pubescent towards apices only; pedicels 8-15 mm long .. *A. thomsonii*
    2. Inflorescence pubescent throughout; pedicels 2-5 mm long .. *A. chinensis*
1. Flowers sessile .. *A. dasyphylla*

2. Aralia dasyphylla Miq. Fl. Ind. Bat. 1(1): 751. 1855; Li in Sargentia 2: 114. 1942.

Prickly shrubs or small trees, up to 6 m; innovations densely brown pubescent; leaves up to 70 cm, bipinnate, with 2 accessory leaflets on each pair of pinnae at base; leaflets 7-9 per pinna, ovate to oblong-lanceolate, rounded to subcordate at base, acuminate at apex, 5-14 cm long, 2-6 cm broad; lateral nerves 7-10 pairs; panicles up to 20 cm long; peduncles 5-14 mm long; flowers ± 2-5 mm across, sessile, capitate; fruits sessile, globose, 5-angled, ± 3·5 mm diam.

Subtropical evergreen forests, 1000-1400 m, Umtapoh, *Balakrishnan* 42723 (det. at K).

This species was previously known to occur in S. China, Indo-China, Malaysia and Java. This is the first record for India.

3. Schefflera arboricola (Hayata) Merr. in Lignan. Sci. J. 5: 139. 1927. *Heptapleurum arboricolum* Hayata, Ic. Pl. Formosa 6: 23, t. 4. 1916.

Shrubs, sometimes scandent, 3-4 m high; petioles 10-15 cm long; leaflets 7-9, obovate to oblong-ovate, acute or obtuse at apex, 8-10 cm long, 3-5 cm broad; lateral nerves 5-6 pairs; petiolules 2-4 cm long; inflorescence terminal, paniculate, 15-20 cm long; peduncles 5-10 mm long; pedicels 5-8 mm long; fruits ovoid, distinctly 5-angular, ± 5 mm long, ± 4 mm thick, glandular-punctate.

Subtropical and temperate evergreen forests, 1300-1800 m, Ummulong, *Balakrishnan* 42968 (det. at E).

This species previously known to occur in S. China and Formosa is a new record for India. This and the following species are closely related to *S. hypoleuca* and *S. venulosa* already known from the area, but differ as follows:

1. Style connate into a distinct cylindric column; fruits crowned by a narrow cylindric column .. 1. *S. hypoleuca*
1. Styles none; stigmas sessile, fruits crowned by a conical disc:
    2. Flowers and fruits sessile or subsessile .. 2. *S. glomerata*
    2. Flowers and fruits distinctly pedicelled:
        3. Leaflets oblong to obovate, broadest above the middle .. 3. *S. arboricola*
        3. Leaflets elliptic to oblong, not broadest above the middle .. 4. *S. venulosa*

4. Schefflera glomerata Li in Sargentia 2: 33, f. 4. 1942.

Tree, 6-8 m tall; petioles 10-18 cm long; leaflets 3-5, obovate-elliptic to oblanceolate, cuneate at base, obtuse or subacute at apex, 8-15 cm long, 3-5 cm broad; lateral nerves 7-9 pairs; petiolules 2-5 cm long; inflorescences terminal, paniculate, 15-20 cm long; flowers glomerate, subcapitate at ends of short branches; fruits ovoid, distinctly 5-angular, ± 5 mm long, ± 3 mm thick, sessile or subsessile on ± 3 mm long peduncles.

Subtropical evergreen forests, 1000-1500 m: Jarain, *Balakrishnan* 42604 (det. at E).

This is the first record of this species for India, previously known to occur only in S. China.

ASTERACEAE

5. Achillea sibirica Ledeb. Ind. Sem. Hort. Dorpat. 1811 et Fl. Ross. 2: 528. 1846.

Erect undershrubs, 20-80 cm; main stem woody; leaves pectinately pinnatipartite, linear-oblong, 2-10 cm long, 0.5-1.5 cm broad; segments ± 1 mm apart, oblong-lanceolate, mucronate, acutely dentate, 1-2 mm wide, appressed-pilose; heads 9-12 mm long, pale purple to white, in dense corymbs; peduncles 4-10 mm long; involucral bracts 4-seriate, 4-5 mm long; achenes ± 2 mm long, ± 1 mm thick.

Roadsides, wastelands and gardens, 500-1000 m, Garampani, *Panigrahi* 4207 (det. at K).

This species known to occur in China and Siberia so far, is probably introduced as a garden plant and now run wild.

6. Anisopappus chinensis (L.) Hook. & Arn. Bot. Beech. Voy. 5: 196. 1833. *Verbesina chinensis* L. Sp. Pl. 901. 1753.

Erect rigid few-branched herbs, 30-50 cm high; leaves ovate-oblong to oblong-lanceolate, narrowed at base, obtuse at apex, obtusely dentate, 1-5 cm long, 0.5-2.0 cm broad; heads 12-15 mm diam., on long rigid peduncles forming terminal corymbs; involucral bracts 2-3-seriate, pubescent; corolla yellow; ray florets with 3-dentate ligules; disc florets 5-dentate at apex; achenes subterete, ribbed.

Open grasslands, 1000-1500 m; Raliang *Balakrishnan* 50148 (det. at CAL); Sikkim, *N. L. Bor* 19855.

A new record for India, previously known to occur only in China.

7. Erigeron pusillus Nutt. Gen. 2: 148. 1818; Tuyama & Asai in J. Jap. Bot. 42: 335-342, 361-372. 1967.

Erect slender herbs or undershrubs, 10-80 cm high; stems smooth, glabrescent; leaves linear-lanceolate or oblanceolate, entire, cuneate at base, acute at apex, entire, 4-6 cm long, 0.2-0.5 cm wide, glabrous; heads 4-5 mm diam., 30-50-flowered, in terminal and upper axillary panicles; peduncles slender, naked; involucral bracts glabrous, scarious-margined with a purple spot near apex; corolla white, 4-cleft into obtusely triangular lobes.

Open grasslands, roadsides and wastelands, 500-1500 m; Nongringkoh, *Balakrishnan* 46903; Mawryngkneng, *G. K. Deka* s. n.; Umjaisaw, *Balakrishnan* 47132; Sonapahar to Boku, *Subbarao* 28561.

This is a native of New World, introduced into Pacific Islands and Japan. This is the first record of the species from India and differ from the already known *E. bonariensis* L. (*E. linifolius* Willd.) from the area as follows:

Leaves linear-lanceolate, glabrescent; heads 4-5 mm long, 3-6 mm wide; involucral bracts glabrous .. *E. pusillus*
Leaves oblanceolate or spathulate, grey pubescent; heads 6-7 mm long, 6-9 mm wide; involucral bracts pubescent outside .. *E. bonariensis*

ERICACEAE

8. Agapetes campanulata (Kurz) Clarke in Hook. f. Fl. Brit. Ind. 3: 449. 1882. *Vaccinium campanulatum* Kurz in J. As. Soc. Beng. 42(2): 85. 1873.

Subtropical forests, 1000-1300 m, Panglo Woods, Jaintea Hills, *G. Mann* 743.

Previously known only from Burma, this is the first record of this species from India. Among the species known from Assam, this species has the widest corolla, measuring 1.0-1.5 cm wide at mouth.

APOCYNACEAE

9. Aganosma harmandiana Pierre in Spire, Caoutch. Indoch. 109. 1906; Tsiang in Bull. Fam. Mem. Inst. Biol. Peiping, Bot. 9: 24. 1939, *descr. ampl.*

Twining shrubs; leaves ovate, oblong-ovate, rounded or subcordate at base, acute or short acuminate at apex, 10-15 cm long, 6-10 cm wide, puberulous on nerves beneath; petioles 5-10 cm long; flowers in terminal compact paniculate cymes; peduncles 1-2 cm long; calyx-lobes lanceolate, 5-8 mm long, 1-2 mm broad, pubescent; corolla-lobes lanceolate, 4-8 mm long, villous outside.

Tropical evergreen forests, up to 500 m, Dawki, *G. K. Deka* 18461.

Previously known only from Indo-China, this is the first record of the species for India. Among the Indian species, this approaches near to *A. cymosa* but differs in ovate or oblong-ovate leaves with rounded or subcordate base and the corolla-lobes being villous outside.

10. Carissa paucinervis A. DC. Prodr. 8: 333. 1844; Hook. f. Fl. Brit. Ind. 3: 631. 1882.

Tropical evergreen forests, 100-500 m, Kopili riverbed, Garampani, *Balakrishnan* 47056 (det. at CAL).

Previously known to occur in Nilgiri Hills in Tamil Nadu and Monghyr District in Bihar. This is the first record for N-E India. It differs from *C. carandas* and *C. spinarum* in the corolla-tube being smaller, less than 1 cm long and the berries being 2-seeded.

SOLANACEAE

11. Solanum laeve Dunal, Solan. Synops. 22. 1816; Clarke in Hook. f. Fl. Brit. Ind. 4: 231. 1883.

Shaded moist places in tropical evergreen forests, 400-800 m, Sohka, *Balakrishnan* 49854 (det. at CAL).

This is the first record from N. E. India, previously known to occur in peninsular India and Java. This differs from the related *S. macrodon* and *S. subtruncatum* as follows:

1. Branchlets hispid; clayx-teeth 3-7 mm long .. 1. *S. macrodon*
1. Branchlets glabrous; calyx truncate or with minute teeth:
    2. Stems prominently zigzag; pedicels usually 2-8 together; fruits 5-7 mm diam. .. 2. *S. laeve*
    2. Stems not zigzag; pedicels usually solitary or rarely paired; fruits 8-10 mm diam. .. 3. *S. subtruncatum*

ACANTHACEAE

12. Hypoestis triflora R. & S. Syst. 1: 88. 1817; Clarke in Hook. f. Fl. Brit. Ind. 4: 557. 1885; Kanjilal et al. Fl. Assam 3: 540. 1939.

A new variety is discovered from the area and is differentiated from the type variety as follows:

Flower clusters sessile ; corolla 1.0-1.5 cm long ; stamens as long as styles ; seeds oblong .. (a) var. *triflora*
Flower clusters on 5-25 mm long peduncles; corolla 1.5-2.0 cm long; stamens longer than styles ; seeds orbicular-ovoid .. (b) var. *pedunculata*

(a) var. **triflora**

Shaded places in subtropical forests, 1000-1500 m, Jowai, *Balakrishnan* 47319.

(b) var. **pedunculata** Balakr. var. nov. affinis var. **triflorae** a qua tamen differt fasciculis floralibus usque ad 25 mm longis peduncularibus ; corollis ± 2 cm longis ; staminibus longioribus quam stylis ; seminibus ovoideus-orbicularibus.

Raliang, 24 November 1969. *Balakrishnan* 50252 A (HOLOTYPUS in CAL); *ibid.* 50252 B-C (ISOTYPI in ASSAM).

Much-branched slender herbs, 20-50 cm; branches obtusely 4-angled, puberulous. *Leaves* subequal, ovate, acute or subacute at base, acuminate at apex, crenulate-wavy at margins, 2-6 cm long, 1-3 cm wide, puberulous; lateral nerves 5-7 pairs; petioles 5-30 mm long. *Flowers* in clusters of 3, only the middle one maturing; clusters on *5-25 mm long peduncules; outer* bracts oblanceolate, obtuse or subacute at apex, 11-14 mm long, 4-5 mm broad, connate at base only, puberulous outside; inner bracts linear-lanceolate, acute, ± 7 mm long, ± 2 mm wide. *Calyx* 5-lobed, hyaline, 3-4 mm long. Corolla pink, puberulous outside, 1.5-2.0 cm long; tube ± 1 cm long; lower lip 3-nerved, 3-lobed, 8-10 mm long; upper lip oblanceolate, 7-9 mm long. *Stamens* 2; filaments linear, flat, 7-8 mm long; anthers 1-celled, ovoid. *Ovary* oblong, glabrous; style 6-7 mm long; stigma capitate; ovules 2 in each cell. Capsules linear-ellipsoid or obovoid, ± 10 mm long, ± 2 mm thick; seeds ovoid-orbicular, ± 2 mm diam., verrucose, black.

Shaded moist places in subtropical forests, 1000-1500 m, Raliang, *Balakrishnan* 50252.

VERBENACEAE

13. Caryopteris foetida (D. Don) Thellung in Viert. Nat. Ges. Zurich 64: 782. 1919. *Clerodendrum foetidum* D. Don, Prodr. Fl. Nep. 103. 1825. *Caryopteris grata* Clarke in Hook. f. Fl. Brit. Ind. 4: 597. 1885.

Subtropical evergreen forests and pine forests, 1200-1600 m, Khleinkneng, near Jowai, *Balakrishnan* 42917.

This is a new record for N-E India, previously known to occur only in W & C Himalayas.

ORCHIDACEAE

14. Dendrobium terminale Par. & Reichb. f. in Trans. Linn. Soc. 30: 149. 1859; Hook. f. Fl. Brit. Ind. 5: 725. 1890.

Epiphytic in subtropical evergreen forests, 1200-1600 m, Jowai, *R. S. Rao* 2574; Nongpoh, *G. K. Deka* 22793.

A new record for India, previously known to occur in Burma only. This is one of the few species of *Dendrobium* with overlapping, ensiform, laterally compressed, fleshy and nerveless leaves and is allied to *D. acinaciforme* but differs in having only 1 or 2 flowers on very short racemes.

15. Sarcanthus appendiculatus (Lindl.) Hook. f. Fl. Brit. Ind. 6: 67. 1896. *Aerides appendiculatum* Lindl. Gen. Sp. Orch. 242. 1833.

Epiphytic in subtropical forests, 1200-1500 m, Jarain, *Balakrishnan* 46817; Jaintea Hills, *Prain's Collector* 241 (CAL); Fort Lungleh, Mizoram, 1899, *A. T. Gage* 231 (CAL).

A new record for the area, previously known to occur in Burma only. This differs from other species of *Sarcanthus* in the presence of terete leaves.

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